

Amendments To The Claims:

Please amend the claims as shown.

1 – 7 (canceled)

8. (new) A method for controlling the transition of a direct injection internal combustion engine from a first operating mode to a second operating mode, comprising:
determining an output torque of the engine during the first operating mode; and
minimizing an output torque step change of the engine during a transition period between the first operating mode and the second operating mode of the engine by:
increasing an air inlet throttle valve opening,
retarding an ignition angle to a predetermined minimum value,
partially dividing a total quantity of fuel to be directly injected into a cylinder of the engine into a first and second injection portion, and
injecting the first injection portion during a compression phase of the engine operation cycle.
reducing the valve lift of the internal combustion engine to achieve the second operating mode of the engine.
9. (new) The method as claimed in claim 8, wherein the first and second injection portions are injected during the compression phase.
10. (new) The method as claimed in claim 9, wherein the total quantity of fuel to be injected is injected when an inlet valve is closed.
11. (new) The method as claimed in claim 10, wherein the ignition angle is continuously retarded.
12. (new) The method as claimed in claim 11, wherein a larger valve lift can be specified for a discrete valve lift switchover.

13. (new) The method as claimed in claim 12, wherein a standard fuel injection setting is applied after the change-over transition period.

14. (new) The method as claimed in claim 13, wherein the engine operation is returned to a normal mode after the change-over transition has been accomplished.

15. (new) A method for controlling the change-over transition of a direct injection internal combustion engine from a first operating mode to a second operating mode, comprising:
determining an output torque of the engine during the first operating mode where the first operating mode utilizes a higher valve lift cam profile than the second operating mode; and
minimizing an output torque step change of the engine during a change-over transition period between the first operating mode and the second operating mode of the engine by:

setting an air inlet throttle valve opening to a predetermined opening position where the opening position is determined to minimize the output torque step change between the first and second operating modes,

retarding an ignition angle to a predetermined minimum value where the minimum value is determined to maintain stable fuel combustion and minimize the output torque step change between the first and second operating modes,

partially dividing a total quantity of fuel to be directly injected into a cylinder of the engine into a first and second injection portion, and

injecting the first injection portion during a compression phase of the engine operation cycle.

reducing the valve lift of the internal combustion engine to achieve the second operating mode of the engine.

16. (new) The method as claimed in claim 15, wherein the first and second injection portions are injected during the compression phase.

17. (new) The method as claimed in claim 15, wherein the total quantity of fuel to be injected is injected when an inlet valve is closed.

18. (new) The method as claimed in claim 15, wherein the ignition angle is continuously adjusted.
19. (new) The method as claimed in claim 15, wherein a larger valve lift can be specified for a discrete valve lift switchover.
20. (new) The method as claimed in claim 15, wherein a standard fuel injection setting is applied after the change-over transition period.
21. (new) The method as claimed in claim 15, wherein the engine operation is returned to a normal mode after the change-over transition has been accomplished.
22. (new) A method for controlling the change-over transition of a direct injection internal combustion engine from a first operating mode to a second operating mode, comprising:
determining an output torque of the engine during the first operating mode where the first operating mode utilizes a lower valve lift cam profile than the second operating mode; and
minimizing an output torque step change of the engine during a change-over transition period between the first operating mode and a second operating mode of the engine by:
setting an air inlet throttle valve opening to a predetermined opening position where the opening value is determined to minimize the output torque step change between the first and second operating modes,
retarding an ignition angle to a predetermined minimum value where the minimum value is determined to maintain stable fuel combustion and minimize the output torque step change between the first and second operating modes,
partially dividing a total quantity of fuel to be directly injected into a cylinder of the engine into a first and second injection portion, and
injecting the first injection portion during a compression phase of the engine operation cycle.
increasing the valve lift of the internal combustion engine to achieve the second operating mode of the engine.